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ABSTRACT

The purpose of this self-appraisal checklist is to assist Ohio teachers and administrators in their endeavors to improve the elementary school mathematics program. The checklist is organized into the following seven categories: (1) philosophy; (2) organization and administration; (3) class management and instruction; (4) staff; (5) curriculum; (6) facilities and equipment; and (7) evaluation. While the organization of the elementary mathematics program, extent of facilities and activities available, staffing patterns, and other program components may vary widely among schools, the seven categories are represented to some degree in each school's program. All are seen to represent essential aspects. The checklist can therefore be useful in any school in surveying and assessing the existing program and, in turn, comparing it to a quality program exemplified by the checklist items. (MP)

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# A Self-Appraisal Checklist for Mathematics in Ohio's Elementary Schools

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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MARY J. POSTON

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Division of Elementary and Secondary Education
Ohio Department of Education
65 South Front Street
Columbus, Ohio 43215

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## Introduction

The purpose of this self-appraisal checklist is to assist Ohio teachers and administrators in their endeavors to improve the elementary school mathematics program. The checklist was prepared by the Ohio Department of Education, Division of Elementary and Secondary Education, with valuable assistance from a committee of Ohio educators brought together for this purpose.

The checklist is organized into seven major categories which represent essential aspects of an elementary mathematics program. While the organization of the program, extent of facilities and activities available, staffing patterns, and other components of the program may vary widely among schools, the categories are represented to some degree in each school's program. The checklist, therefore, can be useful in any school in surveying and assessing the existing program and, in turn, comparing it to a quality program exemplified by the checklist items.

## How To Use This Checklist

*The Self-Appraisal Checklist for Mathematics in Ohio's Elementary Schools* contains 96 items. Each item represents a criterion against which a school's program can be judged. Evaluative criteria are presented in the form of statements which describe attributes of school mathematics programs. Each statement sets forth a condition which is deemed highly desirable for a quality program. The evaluator should read carefully each statement and determine as objectively as possible the extent to which the statement describes the school's program. This appraisal should be recorded by indicating the extent to which the evaluator believes that the statement describes the school's program. This extent is indicated by circling:

**4** if the evaluator *strongly agrees* that the statement describes the program.

**3** if the evaluator *agrees* that the statement describes the program.

**2** if the evaluator is *undecided.*

**1** if the evaluator *disagrees* that the statement describes the program.

**0** if the evaluator *strongly disagrees* that the statement describes the program.

A **4** rating for an item suggests that the stated attribute of the school's program is very satisfactory; a **3** rating indicates the attribute is satisfactory. A **2** rating may identify an aspect of the program which is borderline between satisfactory and unsatisfactory. A **1** rating suggests a need for program improvement, and **0** indicates that the stated attribute is missing from the program.

A *possible score* is given for each category and for the total program based upon a **4** rating for each statement. The *self-appraisal score* is the total of the ratings given by the evaluator and should be compared to the *possible score* to determine the status of each category and of the total program. The "Summary of Scores" and "Score Comparison Chart" should be used to make these comparisons.

When the checklist has been completed, needed program improvements should be identified on the basis of discrepancies between self-appraisal scores and possible scores. These needed improvements should be listed by categories. The list may then give direction to continuing efforts toward improving the quality of the elementary mathematics program.

## 1. Philosophy

*Possible score:* 68 *points*

*Self-appraisal score:* ____ *points*

*Circle appropriate response:*

**4** *Strongly agree*
**3** *Agree*
**2** *Undecided*
**1** *Disagree*
**0** *Strongly disagree*

| | | | | | |
|---|---|---|---|---|---|
| **1.** There exists and is available to all staff members a clear, written statement of the philosophy and principles upon which the mathematics program is based. | **4** | **3** | **2** | **1** | **0** |
| **2.** A genuine concern for each student as an individual is demonstrated in the mathematics program. | **4** | **3** | **2** | **1** | **0** |
| **3.** Mathematics is regarded as an integral part of the total school program. | **4** | **3** | **2** | **1** | **0** |
| **4.** Objectives for mathematics include well defined outcomes for each learning experience, including specific outcomes in the areas of: | | | | | |
| a. Knowledge and understanding (cognitive domain). | **4** | **3** | **2** | **1** | **0** |
| b. Feelings and appreciation (affective domain). | **4** | **3** | **2** | **1** | **0** |
| **5.** The program encourages each student to develop responsibility for his/her learning. | **4** | **3** | **2** | **1** | **0** |
| **6.** The planned learning experiences in the mathematics program are based on principles of child growth and development. | **4** | **3** | **2** | **1** | **0** |
| **7.** The characteristics (abilities, interests, and needs) of each pupil are considered when determining the scope and sequence of the program. | **4** | **3** | **2** | **1** | **0** |
| **8.** The mathematics program provides opportunity for every pupil to progress at a rate commensurate with his/her ability. Provision is made for: | | | | | |
| a. Remediation. | **4** | **3** | **2** | **1** | **0** |
| b. Enrichment. | **4** | **3** | **2** | **1** | **0** |
| c. Acceleration. | **4** | **3** | **2** | **1** | **0** |

| | | | | | |
|---|---|---|---|---|---|
| 9. The program provides minimum competency standards in mathematics with particular emphasis on basic skills. | 4 | 3 | 2 | 1 | 0 |
| 10. The program provides learning experiences which help the child: | | | | | |
| a. To acquire a knowledge and understanding of mathematical processes, facts, and concepts. | 4 | 3 | 2 | 1 | 0 |
| b. To develop skill in computing with understanding, accuracy, and efficiency. | 4 | 3 | 2 | 1 | 0 |
| c. To develop ability in using problem-solving techniques. | 4 | 3 | 2 | 1 | 0 |
| d. To gain a greater understanding of the logical structure of mathematics. | 4 | 3 | 2 | 1 | 0 |
| e. To gain a greater appreciation for the logical structure of mathematics. | 4 | 3 | 2 | 1 | 0 |

## 2. Organization and Administration

*Possible score: 68 points*

*Self-appraisal score: ____ points*

*Circle appropriate response:*

**4** *Strongly agree*
**3** *Agree*
**2** *Undecided*
**1** *Disagree*
**0** *Strongly disagree*

| | | | | | |
|---|---|---|---|---|---|
| 1. All students are involved in mathematics education and receive regular instruction. | 4 | 3 | 2 | 1 | 0 |
| 2. A graded course of study for mathematics exists and the program is based on sequential steps indicated by this course of study. | 4 | 3 | 2 | 1 | 0 |
| 3. A locally developed curriculum guide is in use. | 4 | 3 | 2 | 1 | 0 |
| 4. Daily lesson plans are developed according to short-term objectives and long-range goals. | 4 | 3 | 2 | 1 | 0 |
| 5. Effective techniques, consistent with the objectives of the program, have been developed to evaluate student progress. | 4 | 3 | 2 | 1 | 0 |
| 6. A system of evaluation is used to report pupil progress to pupils, parents, and staff. | 4 | 3 | 2 | 1 | 0 |
| 7. The evaluation system is consistent with objectives of the program. | 4 | 3 | 2 | 1 | 0 |

8. Mathematics instruction is provided within the framework of the accepted curriculum guide. 4 3 2 1 0

9. The mathematics program provides guidance based on identification of pupil aptitude in mathematics. 4 3 2 1 0

10. Remediation, enrichment, and acceleration are provided as needed. 4 3 2 1 0

11. The mathematics program encourages effective use of diagnostic and achievement testing. 4 3 2 1 0

12. The mathematics program relies on effective instructional techniques as evidenced by:

    a. A variety of instructional techniques appropriate for instructional objectives. 4 3 2 1 0

    b. Provision for adaptation of materials to student needs, abilities, and learning styles. 4 3 2 1 0

    c. A balance between teacher and student-centered activities. 4 3 2 1 0

    d. Relating instruction to out-of-school activities and current topics. 4 3 2 1 0

13. To insure continuity, provision is made for articulation among those responsible for implementing the total K-12 mathematics program. 4 3 2 1 0

14. The work in mathematics is correlated with learnings in other areas, particularly science, vocations, and social studies. 4 3 2 1 0

## 3. Class Management and Instruction

*Possible score: 84 points*

*Self-appraisal score: ____ points*

*Circle appropriate response:*

**4** *Strongly agree*
**3** *Agree*
**2** *Undecided*
**1** *Disagree*
**0** *Strongly disagree*

1. Class sizes are kept to a minimum with no more than 30 students assigned to one teacher per class period. 4 3 2 1 0

| | | | | | |
|---|---|---|---|---|---|
| 2. Teacher load, including class instruction and extracurricular responsibilities, does not exceed 6½ clock hours per day. | 4 | 3 | 2 | 1 | 0 |
| 3. Students share in planning activities. | 4 | 3 | 2 | 1 | 0 |
| 4. Mathematics teachers share responsibility for: | | | | | |
| a. Developing concepts of numbers and numeration. | 4 | 3 | 2 | 1 | 0 |
| b. Acquiring skills in the operation and relations of the four fundamental arithmetic processes. | 4 | 3 | 2 | 1 | 0 |
| c. Acquiring an understanding of the properties of numbers. | 4 | 3 | 2 | 1 | 0 |
| d. Developing techniques of problem solving. | 4 | 3 | 2 | 1 | 0 |
| e. Acquiring skills in measurement. | 4 | 3 | 2 | 1 | 0 |
| f. Developing an understanding of geometry. | 4 | 3 | 2 | 1 | 0 |
| 5. Classroom control is adequate to insure a desirable learning environment. | 4 | 3 | 2 | 1 | 0 |
| 6. Assignments are clearly stated. | 4 | 3 | 2 | 1 | 0 |
| 7. Good pupil-teacher relationships exist. | 4 | 3 | 2 | 1 | 0 |
| 8. Class time is provided as needed for supervised study during which some students receive individual attention and others work ahead at their own rate. | 4 | 3 | 2 | 1 | 0 |
| 9. Instruction is adapted to new and changing conditions and developments. | 4 | 3 | 2 | 1 | 0 |
| 10. Drill activities are meaningful to pupils and both understanding and acquisition of skills are stressed. | 4 | 3 | 2 | 1 | 0 |
| 11. The teachers' questioning techniques lead to pupil analysis, requiring pupils to give reasons for their answers. | 4 | 3 | 2 | 1 | 0 |
| 12. Teachers encourage pupils to be creative in mathematics by developing original problems, proposing new solutions, and working independently on projects and reports. | 4 | 3 | 2 | 1 | 0 |
| 13. Pupils are challenged to produce their best efforts. | 4 | 3 | 2 | 1 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14. | Resources of the community are used effectively. | 4 | 3 | 2 | 1 | 0 |
| 15. | Attention is given to developing the reading and writing skills of pupils as needed for effective comprehension and application of the subject matter. | 4 | 3 | 2 | 1 | 0 |
| 16. | Teachers encourage pupils to discover concepts in mathematics by experimenting, observing patterns, and making generalizations. | 4 | 3 | 2 | 1 | 0 |

## 4. Staff

*Possible score:* 36 points

*Self-appraisal score:* _____ points

*Circle appropriate response:*

4 *Strongly agree*
3 *Agree*
2 *Undecided*
1 *Disagree*
0 *Strongly disagree*

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. | Properly certificated teachers are available for mathematics instruction at all levels. | 4 | 3 | 2 | 1 | 0 |
| 2. | The teachers follow a plan for personal and professional growth through participation in: | | | | | |
| | a. Reading | 4 | 3 | 2 | 1 | 0 |
| | b. Graduate work. | 4 | 3 | 2 | 1 | 0 |
| | c. Workshops and conferences. | 4 | 3 | 2 | 1 | 0 |
| | d. Professional mathematics organizations. | 4 | 3 | 2 | 1 | 0 |
| 3. | The school has a program for periodic formal evaluation of the teacher. | 4 | 3 | 2 | 1 | 0 |
| 4. | The school or school system has a definite, well-organized inservice education program for improving the quality of instruction in mathematics classes. | 4 | 3 | 2 | 1 | 0 |
| 5. | Teachers of mathematics share ideas, materials, and methods through formal and informal meetings. | 4 | 3 | 2 | 1 | 0 |
| 6. | Teachers show great concern for the worth and dignity of all pupils. | 4 | 3 | 2 | 1 | 0 |

## 5. Curriculum

*Possible score:* *44 points*

*Self-appraisal score:* _____ *points*

*Circle appropriate response:*

**4** *Strongly agree*
**3** *Agree*
**2** *Undecided*
**1** *Disagree*
**0** *Strongly disagree*

| | | | | | |
|---|---|---|---|---|---|
| **1.** There is a current course of study for mathematics prescribed by the board of education of the school district and approved by the State Board of Education. | **4** | **3** | **2** | **1** | **0** |
| **2.** The course of study is formally revised at least every five years. | **4** | **3** | **2** | **1** | **0** |
| **3.** The curriculum is consistent with the stated purpose and philosophy of the school. | **4** | **3** | **2** | **1** | **0** |
| **4.** Instructional procedures are flexible and provide for teacher creativity in meeting the needs of the individual students. | **4** | **3** | **2** | **1** | **0** |
| **5.** There is a stated mathematics skills sequence. | **4** | **3** | **2** | **1** | **0** |
| **6.** There is a definite sequential mathematics gram, K-12. | **4** | **3** | **2** | **1** | **0** |
| **7.** Progression is appropriate to the child's ability. | **4** | **3** | **2** | **1** | **0** |
| **8.** The mathematics program is specifically structured around the needs, interests, and abilities of the pupils. | **4** | **3** | **2** | **1** | **0** |
| **9.** The organization for instruction is based on procedures which provide for quality instruction for pupils. | **4** | **3** | **2** | **1** | **0** |
| **10.** There is an annual evaluation of the instructional program, using current data and criteria such as this checklist. | **4** | **3** | **2** | **1** | **0** |
| **11.** A course of study committee gives annual consideration to needed revisions in the program and makes appropriate adjustments. | **4** | **3** | **2** | **1** | **0** |

## 6. Facilities and Equipment

*Possible score:* 52 *points*

*Self-appraisal score:* ____ *points*

*Circle appropriate response:*

**4** *Strongly agree*
**3** *Agree*
**2** *Undecided*
**1** *Disagree*
**0** *Strongly disagree*

| | | | | | |
|---|---|---|---|---|---|
| 1. Regular learning areas are provided for mathematics instruction. | 4 | 3 | 2 | 1 | 0 |
| 2. Learning areas with facilities for small groups and individual work are provided. | 4 | 3 | 2 | 1 | 0 |
| 3. A media center exists and has learning materials for mathematics available to parents, pupils, and staff. | 4 | 3 | 2 | 1 | 0 |
| 4. Extensive display areas, including bulletin boards and tables, are adequate and used effectively. | 4 | 3 | 2 | 1 | 0 |
| 5. A science-math laboratory is available. | 4 | 3 | 2 | 1 | 0 |
| 6. Lighting and other physical working conditions are conducive to effective instruction. | 4 | 3 | 2 | 1 | 0 |
| 7. The chalkboards are used extensively by both teacher and pupils. | 4 | 3 | 2 | 1 | 0 |
| 8. Storage facilities for equipment and supplies are adequate. | 4 | 3 | 2 | 1 | 0 |
| 9. Various carefully selected textbooks for use in mathematics are provided. | 4 | 3 | 2 | 1 | 0 |
| 10. Reference materials in mathematics are readily available and used frequently. | 4 | 3 | 2 | 1 | 0 |
| 11. Materials such as workbooks and duplicated worksheets are used to provide supplementary information and exercises as needed. | 4 | 3 | 2 | 1 | 0 |
| 12. Various mathematical models are appropriately used in explanations and demonstrations. | 4 | 3 | 2 | 1 | 0 |
| 13. All teachers of mathematics have copies of the graded courses of study or curriculum guides available to them. | 4 | 3 | 2 | 1 | 0 |

## 7. Evaluation

*Possible score: 32 points*

*Self-appraisal score: ____ points*

*Circle appropriate response:*

**4** *Strongly agree*
**3** *Agree*
**2** *Undecided*
**1** *Disagree*
**0** *Strongly disagree*

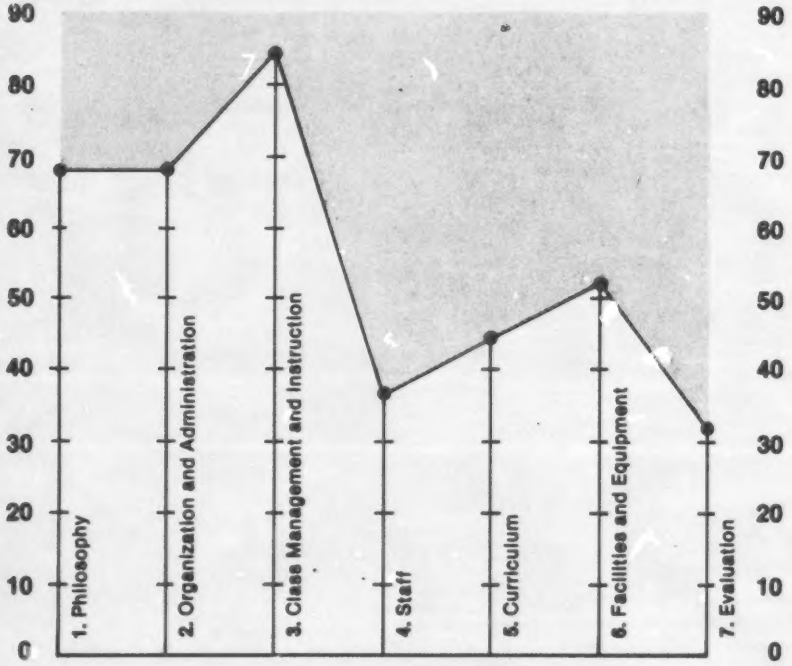
| | | |
|---|---|---|
| 1. | There is a system for reporting pupil progress to pupils, parents, and staff. | 4 3 2 1 0 |
| 2. | Efforts are made to insure that the grading system is understood by both students and parents. | 4 3 2 1 0 |
| 3. | The system of grading and evaluation reports the child's progress according to the sequence of skills. | 4 3 2 1 0 |
| 4. | Teachers understand and use good examination construction. | 4 3 2 1 0 |
| 5. | Special and local examinations, criterion-referenced or diagnostic, are used when appropriate. | 4 3 2 1 0 |
| 6. | Evaluative devices other than written examinations are also used to assess students' progress or special needs. | 4 3 2 1 0 |
| 7. | Regular parent-teacher conferences are scheduled to communicate pupil progress and needs in relation to potential. | 4 3 2 1 0 |
| 8. | The results of standardized tests and teacher-made appraisal measures are used to evaluate both pupil progress and the objectives of the mathematics program. | 4 3 2 1 0 |

## Summary of Scores

| | Possible Score | Self-Appraisal Score |
|---|---|---|
| 1. Philosophy | 68 | _____ |
| 2. Organization and Administration | 68 | _____ |
| 3. Class Management and Instruction | 84 | _____ |
| 4. Staff | 36 | _____ |
| 5. Curriculum | 44 | _____ |
| 6. Facilities and Equipment | 52 | _____ |
| 7. Evaluation | 32 | _____ |
| Totals | 384 | _____ |

## Score Comparison Chart

The dots and connected line on the graph below indicate the highest possible summary of scores. Chart your self-appraisal scores to determine strong and weak areas of your school's elementary mathematics program.



## Summary of Needed Improvements

1. Philosophy

2. Organization and Administration

3. Class Management and Instruction

4. Staff

5. Curriculum

6. Facilities and Equipment

7. Evaluation

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Barbara McBride, Teacher
Newman Elementary School
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Jersey Elementary School
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James Perry, Teacher
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Groveport-Madison Local Schools